Savannah River Remediation

We do the right thing.

System Plan Revision 16




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Agenda

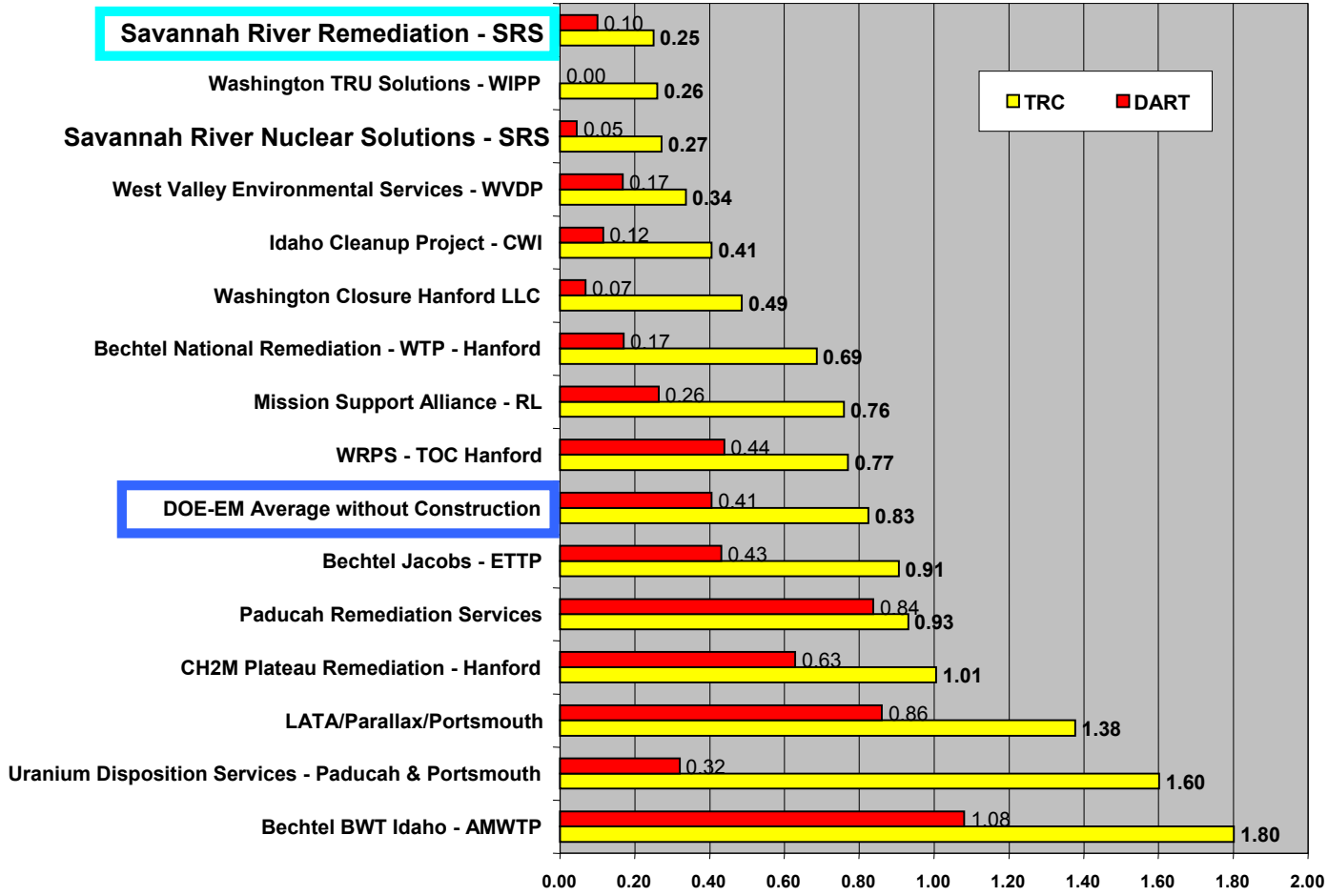
- Safety
- System Plan Rev. 15 Review
- Process Overview
- System Plan Rev. 16 Inputs
- System Plan Rev. 16 Results
- Summary

A Safe and Secure Foundation

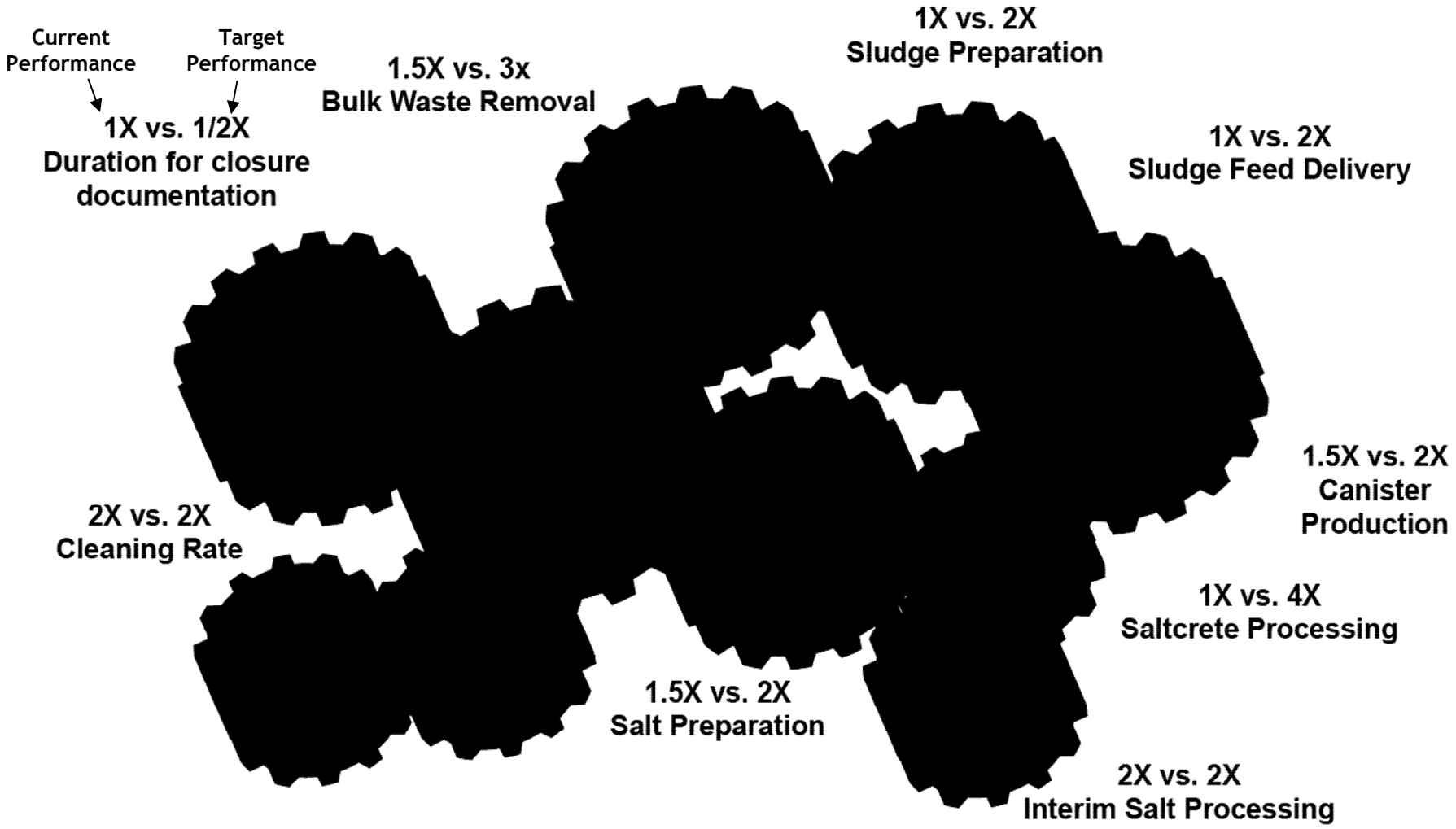
DOE-EM Prime Contractor Safety Ranking

FY 2010 - Including Service Subcontractors (Ranked by TRC Rate)

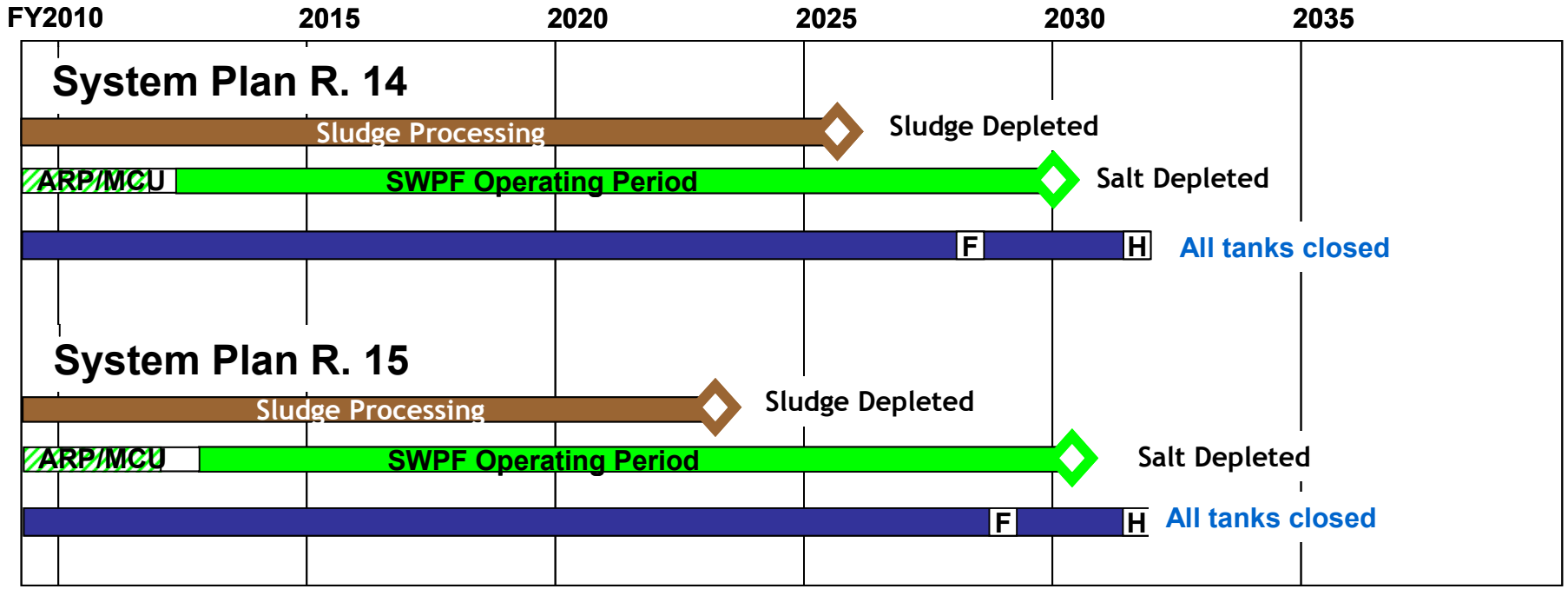
> 600,000 hours per year



Accelerated Processing Status



System Plan Rev. 15 Results



- FFA Commitments for Bulk Waste Removal and Tank Closure Met
- Sludge Processing Complete in FY24
- Salt Processing Complete in FY31

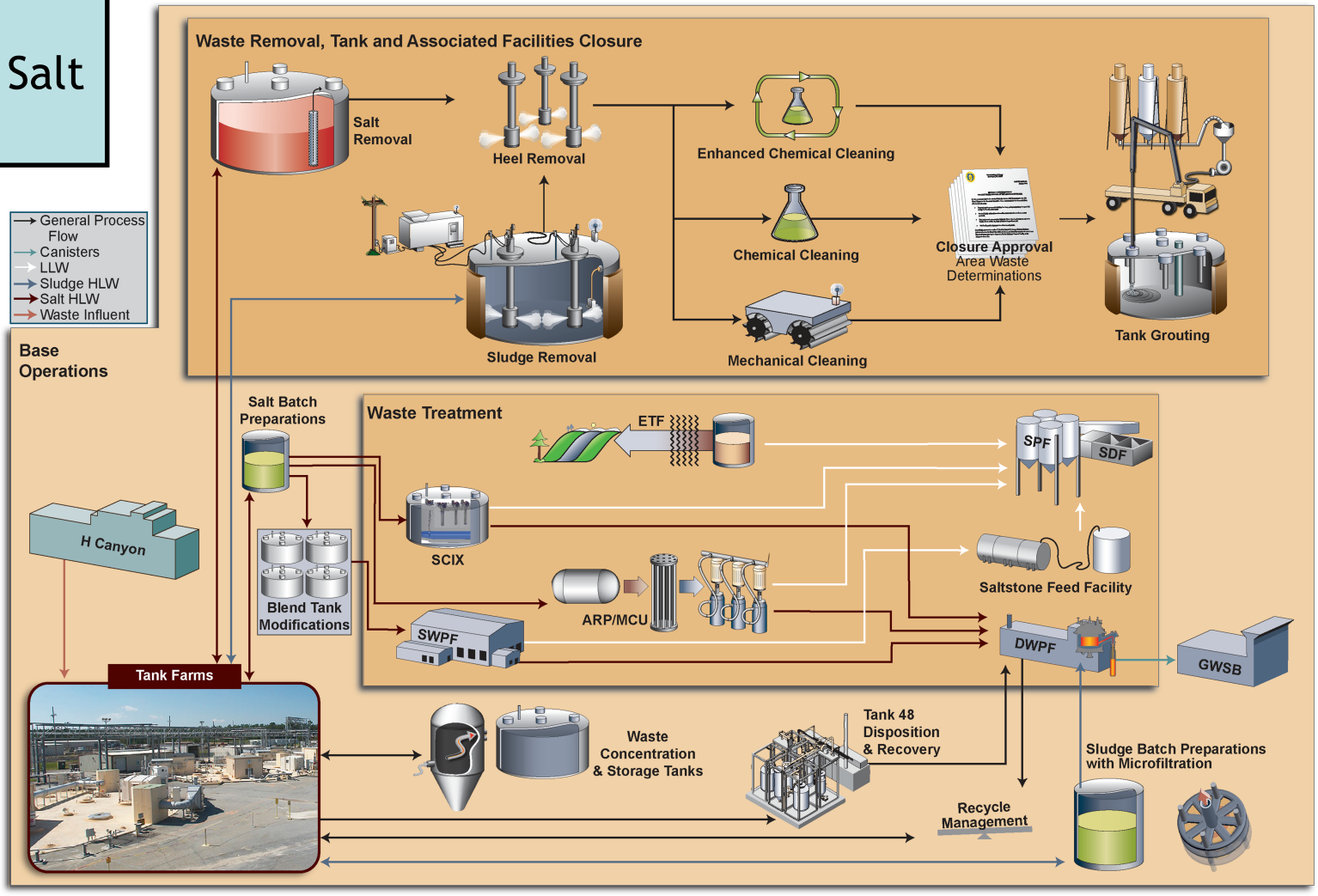
Liquid Waste Overview

Rev. 16 Adds Supplemental Salt Processing

Next Generation Solvent at ARP/MCU and SWPF

Small Column Ion Exchange (SCIX)

Saltstone capacity and reliability upgrades



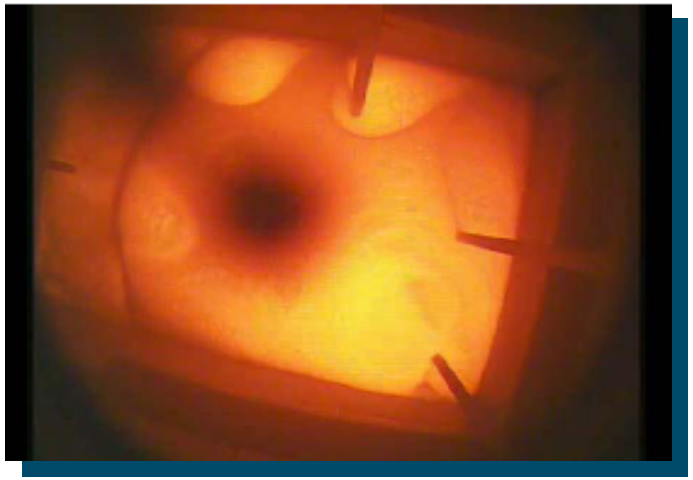
Rev 16 Salt Processing Inputs and Assumptions

- ARP/MCU
  - Process 15-40 thousand gallons per week
  - Batch qualification requires 1 month between batches
  - The ARP and MCU facilities will permanently shutdown no later than six months prior to the startup of SWPF allowing for SWPF tie-ins
    - The ARP and MCU facilities will operate within the curie projections of the *Savannah River Site – Liquid Waste Processing Strategy*
- Small Column Ion Exchange (SCIX)
  - Start-up October 2013
  - Process 2.5 million gallons per year
- Salt Waste Processing Facility (SWPF)
  - Start-up July 2014
  - Process 4.5 million gallons in 1st year and then 7.2 million gallons per year

Rev 16 Sludge Processing Inputs and Assumptions

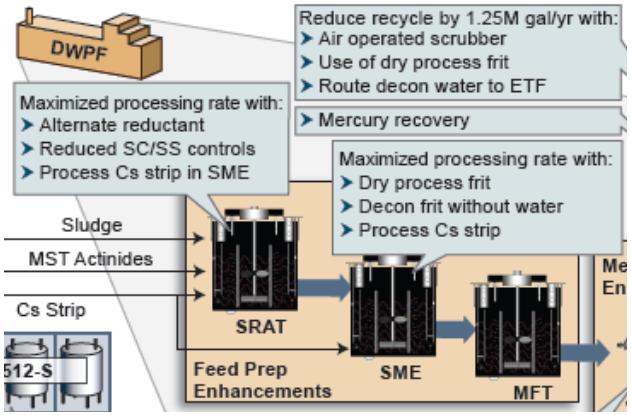
- DWPF will produce canisters at maximum throughput for the duration of the program (based on achievable melt rate, planned outages, and waste loading for sludge being processed).
- DWPF Melter bubblers installed September 2010
  - Increase processing rate to 325 canisters/year
- DWPF process enhancements complete July 2014
  - Increase processing rate to 400 canisters/year

Melter Bubblers



Thanks to Vitreous State Laboratory

DWPF Process Enhancements



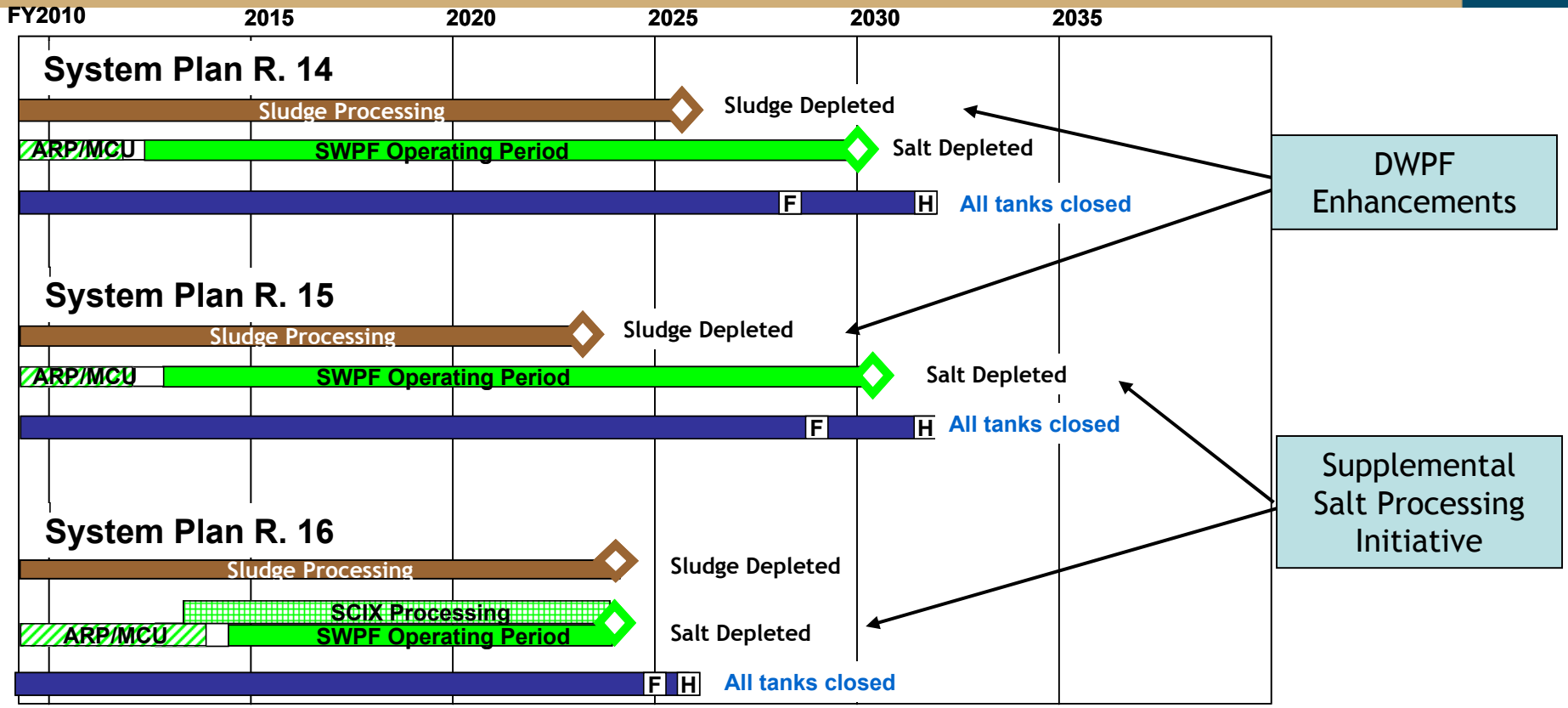
Rev. 16 Inputs and Assumptions

- Enhanced Chemical Cleaning deployed January 2014
- Sludge washing Rotary Microfilter startup in December 2013
- Tank 48 waste treatment is complete and the tank is available for unrestricted service by October 2016
- Tank 50 continues as Saltstone feed tank.
  - Tank 50 is equipped for unrestricted service with higher levels of radioactivity by February 2012

Results

Key Milestone	Revision 15	Revision 16
Date when all Type I, II, and IV tanks are closed	FY18	FY18
DWPF processing complete	FY31	FY24
Salt Processing Complete	FY31	FY24
Total number of canisters produced	7,235	7,557
–Salt only canisters produced	*250*	*0*
Initiate SWPF Processing	May 2013	July 2014
–Salt Solution Processed via DDA only	*2.8 Mgal*	*2.8 Mgal*
–Salt Solution Processed via ARP/MCU	*5.2 Mgal*	*6 Mgal*
–Salt Solution Processed via SCIX	*0*	*25 Mgal*
–Salt Solution Processed via SWPF	*89 Mgal*	*63 Mgal*
–Total Salt Solution Processed	*97 Mgal*	*97 Mgal*
Total number of Saltstone Disposal Units	40	42

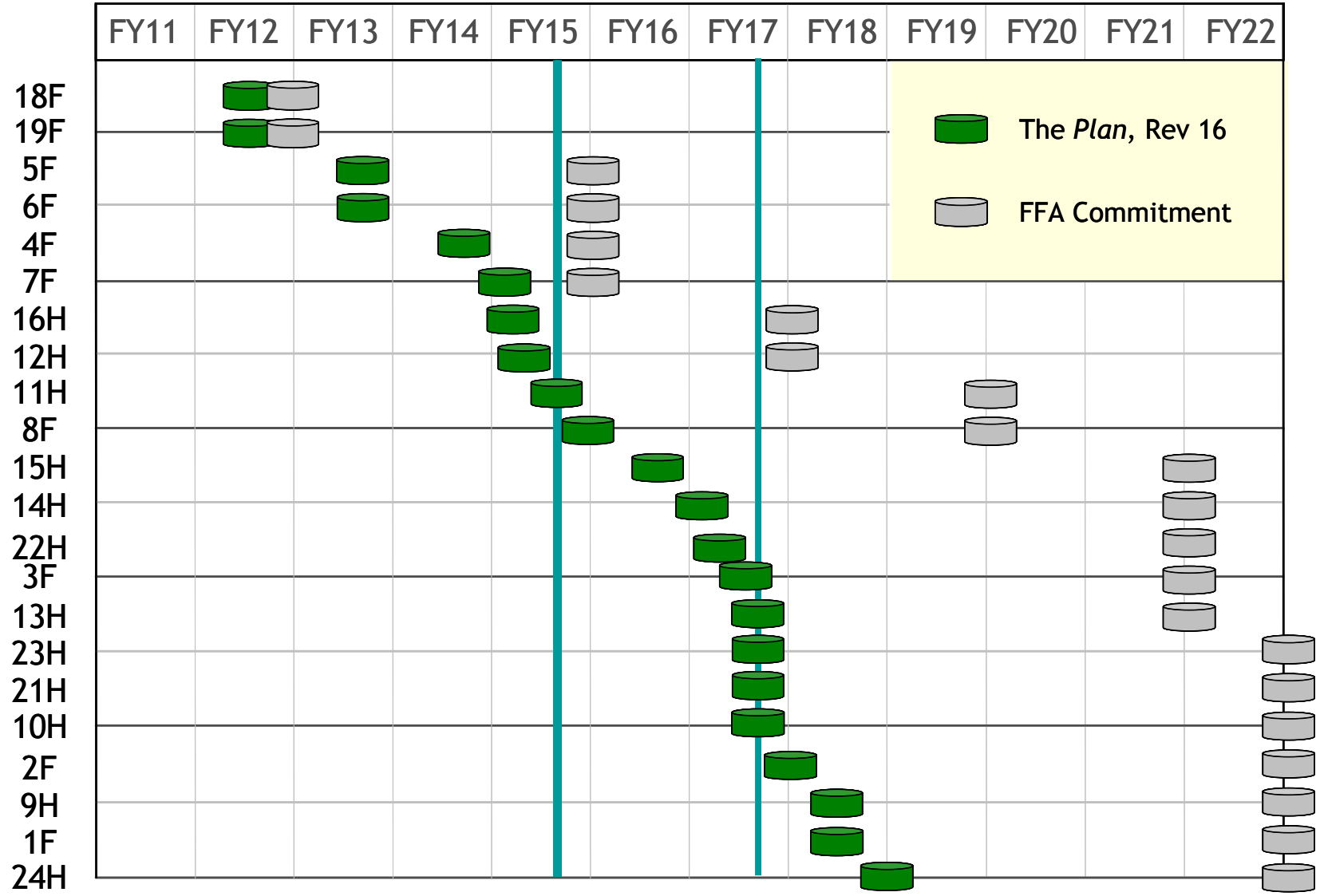
Results - Lifecycle Impact



- FFA Commitments for Bulk Waste Removal and Tank Closure Met
- Sludge Processing Complete in FY24
- Salt Processing Complete in FY24
- No "Salt-Only" Canisters
- Site Treatment Plan 2028 Commitment Met

- **Accelerates the Life Cycle completion date by 6 years**
- **Avoids Life Cycle cost of $3.25 B**

Results - Tank Closures



Summary

- Utilizes key technology deployments to accelerate tank closures, maximize DWPF throughput and supplement salt processing capacity
- System Plan Rev. 16 Consistent with Goals of Liquid Waste Disposition Processing Strategy
- FFA Commitments met
  - Bulk Waste Removal Efforts completed in 2017
  - Old-Style Tank Closures completed in 2018
- Lifecycle accelerated 6 years
  - Salt and Sludge Processing complete in 2024
  - All Tanks Closures complete in 2025
  - No Salt-only Canisters
  - Site Treatment Plan 2028 Commitment Met

Acronyms

ARP	Actinide Removal Process
ARRA	American Recovery and Reinvestment Act
CPB	Contract Performance Baseline
Cs	Cesium
DWPF	Defense Waste Processing Facility
ECC	Enhanced Chemical Cleaning
FBSR	Fluidized Bed Steam Reformer
FFA	Federal Facility Agreement
FTF	F Tank Farm
HLW	High Level Waste
HTF	H Tank Farm
ISDP	Interim Salt Disposition Project
MCU	Modular Caustic-Side Solvent Extraction Unit
MSP	Modular Salt Processing
MST	Monosodium Titanate
SCIX	Small Column Ion Exchange
SPF	Saltstone Processing Facility
SWPF	Salt Waste Processing Facility
WR	Waste Removal